The claims have been amended and in view of those amendments the rejection of claim 7 under 35 USC §112 is no longer applicable.

The original claims have been amended and new claims 8 and 9 have been added. Claim 4 as amended is based upon original claim 4 plus the additional subject matter found on page 3, lines 7-10. Moreover, claim 7 as amended is based upon present claim 7 and the disclosure at page 2, line 22 of the specification.

New claim 8 is based upon the disclosure on page 2, lines 28-29 as well as the example, while new claim 9 is based upon the disclosure on page 3, lines 17-19 of the specification.

Applicant respectfully submits that the present invention as defined in claims 1-9 is neither anticipated nor rendered obvious by the prior art taken along or in combination with one another, for the reasons expressed below.

With respect to the rejection of claims 4 and 5 as anticipated by Mitlitsky et al US 5,714,404 ("Mitlitsky"), Mitlitsky does not disclose the glass transition temperature of a polymer to be relevant for its suitability as support for a photovoltaically active layer. (1)
What he teaches is a critical temperature, defined in column 3, lines 4-7 as the temperature the polymer can withstand for a period of about 100 μs. There is no teaching about the glass transition temperature in Mitlitsky. Although, in view of Mitlitsky's critical temperature, PES is a low-temperature substrate (Mitlitsky, column 3, lines 14-19), in view of the glass transition temperature, PES is a high-temperature substrate (see Ullmann's, volume A21, page 295 and page 462, attached to this response) showing "excellent thermal and oxidative stability". (2)

There is no teaching in Mitlitsky to use polymers with the defined range of glass transition temperature of from 90°C to 200°C. Moreover, Mitlitsky is silent about a transparent and electrically conductive substrate layer.

Additionally, with respect to the rejection of claims 4-6 as anticipated by Taniguchi Tadatake (JP 05090624), the same arguments are applicable as set forth above in distinguishing Mitlitsky from the subject matter of claims 4 and 5. Accordingly, claims 4-6 are not anticipated by Taniguchi Tadatake. It is also submitted that the combination of Mitlitsky and Taniguchi Tadatake taken together fails to suggest the subject matter of claim 6.

Although Takenouchi describes a semiconductor device comprising PET as support, he does not teach a material according to present claim 4. On the contrary, he teaches away from use of a semiconductor layer on a PET substrate without a thick acrylic acid interlayer (page 3, line 41 – page 4, line 2). This teaching is emphasized for PET (page 4, lines 42-46), which is said to be most liable to form oligomers due to its lower glass transition temperature. An expert, who wanted to avoid the acrylic resin interlayer was therefore, at the time of the present invention, lead away from PET to materials not claimed by the present invention and might have used PES as taught by Mitlitsky, but not PET according to the present invention.

Lastly, Mitlitsky alone does not suggest the subject matter of claims 1-3. For the same reason given above, the teachings of Mitlitsky to use "low temperature substrates" according to his definition would not make it obvious to use a polymeric material according to the present invention, with a glass transition temperature of from 90°C to 200°C, preferably PET or PEN. As demonstrated by Ullmann and by Takenouchi, PES

is an organic polymer that can be used as an organic support, but its physical and chemical properties differ strongly from the polymers of the present invention. Therefore it was not obvious to replace PES with PET or PEN, and the rejection should therefore be withdrawn.

The objective of the present invention is achieved by coating at temperatures below the very low glass transition temperature of from 90°C to 200°C, whereas Mitlitsky claims "not raised above a temperature of about 450°C".

According to present claim 8, the coating is preferably carried out with an aqueous or solvent-containing CdTe suspension, and according to claim 9 this suspension contains very small particles of CdTe. Both claims show the great advantages of the present invention, to coat the semiconductor particles at low temperature without damaging the support and without physical ripening of the nanoparticles. No method was known at the time the invention was made to coat a semiconductor at a temperature as claimed on the polymeric material of the present invention, followed by the strong annealing as claimed.

According to the invention herein, annealing is done at temperatures of at least 250°C, by means of a laser for 0.01 to 1 s, preferably at temperature from 400 to 600°C (present claim 7), which is far from the conditions taught by Mitlitsky "not raised above a temperature of about 180°C for longer than about 100µs". This is a qualitative difference that cannot be explained by the thickness of the material.

Although not knowing the mechanism, it appears that careful coating makes the material very resistant for the annealing process and enables one to produce a very efficient photovoltaic element. Another advantage of the present invention is the

economic production allowed by it, especially if a continuous coating method is used (page 3, lines 29-31).

Accordingly, for the reasons noted above, it is believed that claims 1-9 herein define subject matter which is not anticipated or rendered obvious by the prior art. The application is believed to be in condition for allowance and Notice to that effect is respectfully requested.

Respectfully submitted,

CONNOLLY BOVE LODGE AND HUTZ LLP

By Richard M Beck

Richard M. Beck
Reg. No. 22,580
Telephone: 302 658-9141

RMB/alh/203911

**APPENDIX 1**
**SERIAL NO.: 10/038,030**

1. A method of coating organic polymeric supporting materials with at least one photovoltaically active layer and annealing the materials thus coated, characterised in that the supporting material consists of a polymeric material with a glass transition temperature of from 90°C to 200°C[. Coating] <u>and wherein coating</u> is carried out at temperatures below the glass transition temperature and annealing at temperatures of at least 250°C, by means of a laser for 0.01 to 1 s with an energy to 2 to 5000 watt per $mm^2$.

4. A solar cell comprising <u>at least one substrate layer and</u> at least one photovoltaically active layer on a support, characterised in that the support is a polymeric organic material having a glass transition temperature of from 90°C to 200°C<u>,</u> <u>and wherein the substrate layer is transparent and electrically conductive</u>.

7. The method as claimed in claim 1, wherein the [coating] <u>annealing</u> is carried out at temperature from 400 to 600°C.